In the Title

On page 1, lines 1-2, replace "System and Method for Fixed-Rate Block-Based Image Compression with Inferred Pixel Values" with -- Fixed-Rate Block-Based Image Compression with Inferred Pixel Values--.

In the Specification

On page 5, line 9 through page 10, line 5, please replace

> "An image processing system includes an image encoder or compression system and an image decoder or decompression system that are coupled together. The image encoder system receives an original image from a source and encodes the original image into a compressed form that is reduced in size and that represents the original image with minimal loss of image quality. The image decoder system decodes the encoded image to generate an output representing the original image.
>
> The image encoder system includes an image decomposer that is coupled to one or more block encoders. The one or more block encoders are, in turn, coupled to an encoded image composer. The encoded image composer is coupled to an output. In addition, the image decomposer and the encoded image composer are coupled to a header converter. The output of the

encoded image composer may be coupled with a storage device, a memory, or a data transmission line, for example.

The image decomposer breaks the original image into its header and some number of image blocks. The header is forwarded to the header converter which modifies the header and forwards it to the encoded image composer. Each image block has a fixed size, e.g., four-by-four pixels, and is forwarded to the one or more block encoders. The block encoders convert the image block into a compressed or encoded block form, which is also of a fixed size. The encoded image composer orders the encoded image blocks and concatenates them with the modified header to produce an output that is an encoded image data representing the original image.

Each block encoder includes a color quantizer and a bitmap construction module that are coupled together. Further, the color quantizer includes a block type module, a curve selection module, and a codeword generation module. The block type module is coupled to the curve selection module and the curve selection module is coupled to the codeword generation module.

In a preferred embodiment, the block type module identifies which one of two color sets, which comprise either four

quantized pixel values (e.g., colors) or three quantized pixel values (e.g., colors) and a transparency, is to be used for the encoding of each data block received from the block decomposer. The curve selection module and the codeword generation module function to select two base colors, or codewords, that may be used to identify the color set to which each pixel in the image block is mapped.

In a preferred embodiment, the set of colors are equidistant along a line in a color space. In addition, the two endpoint quantized colors are used as the codewords themselves, and the remaining one or two quantized colors are inferred or interpolated. If one quantized color is inferred, the fourth reference may be a transparency.

Once the codewords and quantized colors are identified, the bitmap construction module constructs a bitmap value for each pixel in the block. Each pixel's bitmap value is an index (identified as an ID value) indicating which of the quantized colors best matches the pixel. The bitmap construction module outputs the bitmap and the codewords as a single encoded image block. In a preferred embodiment, each bitmap value is two-bits, comprising a bitmap of 32-bits, which along with two 16-bit codewords form a 64-bit encoded image block.

Each of the encoded image data blocks from a block encoder is then ordered in the encoded image composer to generate a data file of the encoded image blocks. The data file of the encoded image blocks is concatenated with the header information from the original image data to generate the encoded or compressed image data. The encoded [encode] image data may then be decoded or decompressed in the image decoder system.

The image decoder system includes an encoded image decomposer, a header converter, one or more block decoders, and an image composer. The encoded image decomposer is coupled to the header converter and the one or more block decoders. The image composer is coupled to the one or more block decoders and the header converter. The image composer is coupled to output an image representing the original image.

The encoded image data is received by the encoded image decomposer that decomposes, or breaks, the encoded image data into its header and its encoded image blocks. The header is forwarded to the header converter which modifies the header and forwards it to the image composer. The one or more encoded image blocks are independently decoded by one or more block decoders. The image composer orders the decoded image blocks into a data file of decoded image blocks. The data file is

concatenated with the header from the header converter and the entire file is output as an image representing the original image.

Each block decoder includes a block type detector, a decoder unit for each block type, and an output selector. The block type detector is coupled with each decoder unit and the output selector. In addition, each decoder unit is coupled with the output selector. The block type detector determines which decoder unit is selected to decode the encoded block. In a preferred embodiment, the block type is determined through an arithmetic comparison of the encoded block's codewords.

Based on the selected decoder, the quantized colors are inferred from the codewords for the encoded block. An index value (ID value) for each pixel in the block is read from the bitmap data string to map each pixel to the appropriate quantized color. The colors for each pixel in the block are output to the output selector. The output selector sends the appropriate decoded block to the image composer for ordering to generate the final image at the output.

The present invention also provides for decoding only portions of the encoded image by allowing for random access to portions of the image. Thus, the present invention advantageously

can decode an encoded image in a particular order and portion. For example, in a three-dimensional graphics environments, the present invention can select parts of the encoded image used for texture maps."

with

--An image processing system includes an image encoder system and an image decoder system that are coupled together. The image encoder system includes a block decomposer and a block encoder that are coupled together. The block encoder includes a color quantizer and a bitmap construction module. The block decomposer breaks an original image into image blocks, each having a plurality of pixel values (e.g. colors) or equivalent color points. Each image block is then processed by the block encoder. Specifically, the color quantizer computes some number of base points, or codewords, that serve as reference pixel values, such as colors, from which computed or quantized pixel values are derived. The bitmap construction module then maps at least one pixel value in the image block to one of the computed or quantized colors or one of the codewords. The codewords and bitmap are output as encoded image blocks.

The decoder system includes a block decoder having one or more decoder units and an output selector. The block decoder may also include a block type detector for determining the block type of an image block. The block type determines the number of computed colors to use for mapping each pixel color from an image block. Using the codewords of the encoded data blocks, the comparator and the decoder units determine the computed colors for the encoded image block and map each pixel to one of the computed colors. The output selector outputs the appropriate color, which is ordered in an image composer with the other decoded blocks to output an image representative of the original image.

The present invention also includes a method of compressing an original image block having a set of original colors. The method includes: computing a set of codewords from the set of original colors; computing a set of computed colors using the set of codewords; and mapping each original color to one of the computed colors or one of the codewords to produce an index for each original color.

The compressed or encoded image block, which has a first set of indices and a set of codewords, where a set is equal to or greater than one, is decoded by: computing at least one computed

color using the set of codewords; and mapping an index within the first set of indices to one of the computed colors or one of the codewords.

Those of ordinary skill in the art will readily recognize that the present invention may be practiced using any general purpose computer system, such as the computer system described below, or any "hardwired" device specifically designed to perform the method, such as but not limited to devices implemented using ASIC or FPGA technology and the like.--.

On page 11, line 8, please replace "4A-4F" with --4A-4E--.

On page 26, line 21, after "line." please insert --Those of ordinary skill in the art will readily recognize that the term optimal analog curve is not limited solely to a straight line but may include a set of parameters, such as pixel values or colors, that minimizes the moment of inertia or means square error when fitted to the center of gravity of the pixel colors in the image block. The set of parameters may define any geometric element, such as but not limited to a curve, a plane, a trapezoid, or the like.--

On page 17, line 9, after "a" please remove --curve--.

On page 17, line 11, after "the" please remove --curve--.

On page 17, line 11, after "The" please remove --curve--.

On page 17, line 19, before "selection" please remove --curve--.

On page 21, line 12, please replace "selected" with --computed--.

On page 21, line 14, please replace "selecting" with --computing--.